OpenScape Voice

Silent Monitoring Feature Description

Includes SIP Flows and
CSTA Service and Event Flow Examples

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1 Silent Monitoring

1.1 Feature Description

The OpenScape Voice (OSV) V7 Silent Monitoring is a critical feature required by enterprise and contact center customers. This feature allows a supervisor or recording device with sufficient privileges to be able to silently monitor an agent. If the agent is idle, the supervisor will remain in suspended mode waiting for the agent to be involved in a call. At that point the supervisor will be silently monitoring the conversation between the agent and the remote party. The agent and remote party can be notified when monitoring is active with an audible tone or announcement. This notification is configurable to play at the start of the monitoring or periodically during the life of the call. Once in a silent monitoring session, the supervisor or recording device chooses to activate the following features:

- BARGE-IN into the conversation (2-way voice path)
- LEAVE the silent monitoring by hanging up without affecting the conversation.

Silent Monitoring shall be activated using a feature access code or through the CSTA-enabled application via the CSTA services.

The basic premise of the service shall make use of the following information to allow device monitoring:

1. A device that may be monitored must be assigned the Silent Monitoring Agent subscriber feature.
2. A monitoring device must be assigned the Silent Monitoring Supervisor feature.
3. The recording device and monitoring device are complementary (i.e., the recording device may perform recording function in addition to the monitoring device).

The Silent Monitoring feature will also be used for on-demand (via CSTA Join Call Service Only) and continuous recording. In order to support on-demand and continuous recording via a third party application, the recording device as well as the monitored device will be an actively monitored OpenScape Voice CSTA provisioned subscriber.

Continuous recording can also be activated from the recording device by the user as a result of dialing a silent monitoring feature access code and the directory number of the device to be monitored.

Silent Monitoring places certain restrictions on other call control features and may not be possible when certain call control conditions are active on a call. These limitations have been described in detail in the OpenScape Voice feature interactions. Dynamic restrictions in CSTA services are presented in CSTA events via the servicesPermitted parameter.

1.2 Recording Device and Application Considerations

The recording device will present itself as a SIP Phone or a SIP-IAD to the Silent Monitoring Service and no special consideration is needed to manage the recording devices. Moreover, the scheduled recording timetable is defined externally by the application or the recording device. This feature will provide the necessary primitives to manage the silent monitoring feature.

Vendors and customers implementing an external recording application that use the capabilities of this feature shall use the CSTA Interface described herein to maintain compliance during development, testing and subsequent deployment. This interface specification shall act as a contract and a compliance agreement between the application and the primitives developed for this feature. Additionally, the recording devices shall support a SIP stack and capabilities which are compatible with SIP Interface specification as specified by OSCAR.

Monitoring device may monitor one subscriber at any given time. However, the monitoring device may consult and monitor other subscriber while the previous monitoring session is on hold.

If two monitored subscribers are in the same call and the recording device needs to initiate a recording on both subscribers, then if the recording is initiated via CSTA the recording device must present the deviceID of each subscriber in each Join Call service request. However if the recording is invoked via SIP then this restriction does not apply.

1.3 Feature Administration and Maintenance

For Silent Monitoring the following can be provisioned per subscriber:

- Silent Monitoring Supervisor: The Silent Monitoring Supervisor feature shall contain the following data:

General

  - **Silent Monitoring**: Indicates whether the supervisor is allowed to invoke Silent Monitoring. By default it shall be true.
  - **Barge-In**: Indicates whether the supervisor is allowed to invoke Barge-In. By default it shall be true.

Monitoring Sessions (only applicable if **Silent Monitoring** flag is to true)

  - **Hold Call when Inactive**: Indicates whether the Supervisor shall be placed on hold (via a=sendonly) when the monitoring session is inactive (i.e. there are no calls being monitored or when the monitored call is held). The default shall be false.
  - **Inactive Intercept**: Defines which intercept shall be provided when the monitoring session is inactive. If no intercept is provisioned the supervisor will listen to silence.
  - **Consider as secure connection**: Indicates whether the OSV shall consider the supervisor connection with the Media Server as secure even if SRTP is not negotiated. The default shall be false.

- The Silent Monitoring Agent feature shall contain the following data:

General

  - **Silent Monitoring**: Indicates whether the agent is allowed to be Silent Monitored. By default it shall be true.
  - **Barge-In**: Indicates wheter the agent is allowed to be Barged-In. By default it shall be true.

- **Silent Monitoring Tagging**: Indicates whether the agent will be tagged for Silent Monitoring. This flag shall be only applicable if **Silent Monitoring** flag is true. The default value shall be false.
- **Tone Monitoring** (Only applicable if **Silent Monitoring** flag is true)
- **Activate**: Indicates whether Tone Monitoring is enabled or not. By default is shall be false.
- **Interval**: (Only applicable if **Activate** flag is true). Indicates the interval (in seconds) in which the tone shall be played to the agent and or the partner devices. A value of 0 indicates that only the initial tone is played (default: 30 range: [0, 100]).
- **Notify Partner Devices**: (Only applicable if **Activate** flag is true). Indicates whether the OSV shall play the monitoring tone to the partner device(s) (default: true)

The following can be configured on BG level SILM service:

- **Maximum number of subscribers tagged for monitor:** Specifies the maximum number of subscribers that are allowed to be provisioned with the SILM Tagging feature. The value 0 means that the maximum number is unrestricted for the system.

- **Maximum number of Supervisors per monitored party:** This parameter indicates the maximum number of Continuous monitoring supervisors and the per-Call monitoring supervisors (added via CSTA) independently (default: 5).

1.4 Modes of Activation

- **CSTA Interface**: The CSTA-enabled application sends a Join Call Service request with **joiningDevice** (monitoring device) and one of the following **activeCall** with one of the following depending on the monitoring type to be invoked:
  - **On-Demand Monitoring:** complete connectionID; including deviceID to be monitored and current callID.
  - **Continuous Monitoring:** deviceID only of the device to be monitored. The callID is null.
    NOTE: Refer to the CSTA service and event flow section of this specification for additional details.
- **Phone User Interface:** The user dials a predefined access code (e.g. <Access Code + Target DN to monitor>#).

1.5 Preconditions for Monitoring

The pre-requisites for monitoring a call are as follows:

- Each target DN to monitor may not exceed 30 digits in length
- Only one target may be monitored at one time from the perspective of monitoring device
- The target DN may only be a subscriber of OSV with Silent Monitoring Agent feature.
- The monitoring DN may only be a subscriber of OSV assigned the Silent Monitoring Supervisor feature.
- The feature must not be disabled from the administration interface.

1.6 Feature Activation

The user dials Silent Monitoring activation access code along with the directory number of the subscriber to monitor (target). The OSV checks if the user has the service assigned. If the service is not assigned, the user is provided an intercept treatment via the announcement server and the call is terminated.

If the service is assigned to the user, following sequence of checks will be performed and finally the monitoring may begin:

- Verify that the monitored subscriber is not a protected subscriber (i.e. a subscriber excluded from the monitoring list)
- Verify that the target is not already being monitored by the maximum number of Supervisors.

Once the above steps are confirmed, silent monitoring service will bridge the monitoring device into the call but will not mix the monitoring device's media into the mixing device resulting in silent monitoring.

Instead of invoking the feature from the phone, the user may also invoke a Join Call service to initiate the service from a CSTA-enabled application.

This feature also allows provisioning of another access code to barge-into a call without any warning. It is possible to barge into a call that is being monitored from the phone within the context of the same call and toggle between barge-in to silent mode at any time. This can be donewith the usage of the configuration feature toggle key. CSTA enabled application may also toggle from barge-in to silent participation within the same call context at any time.

1.7 Feature Deactivation

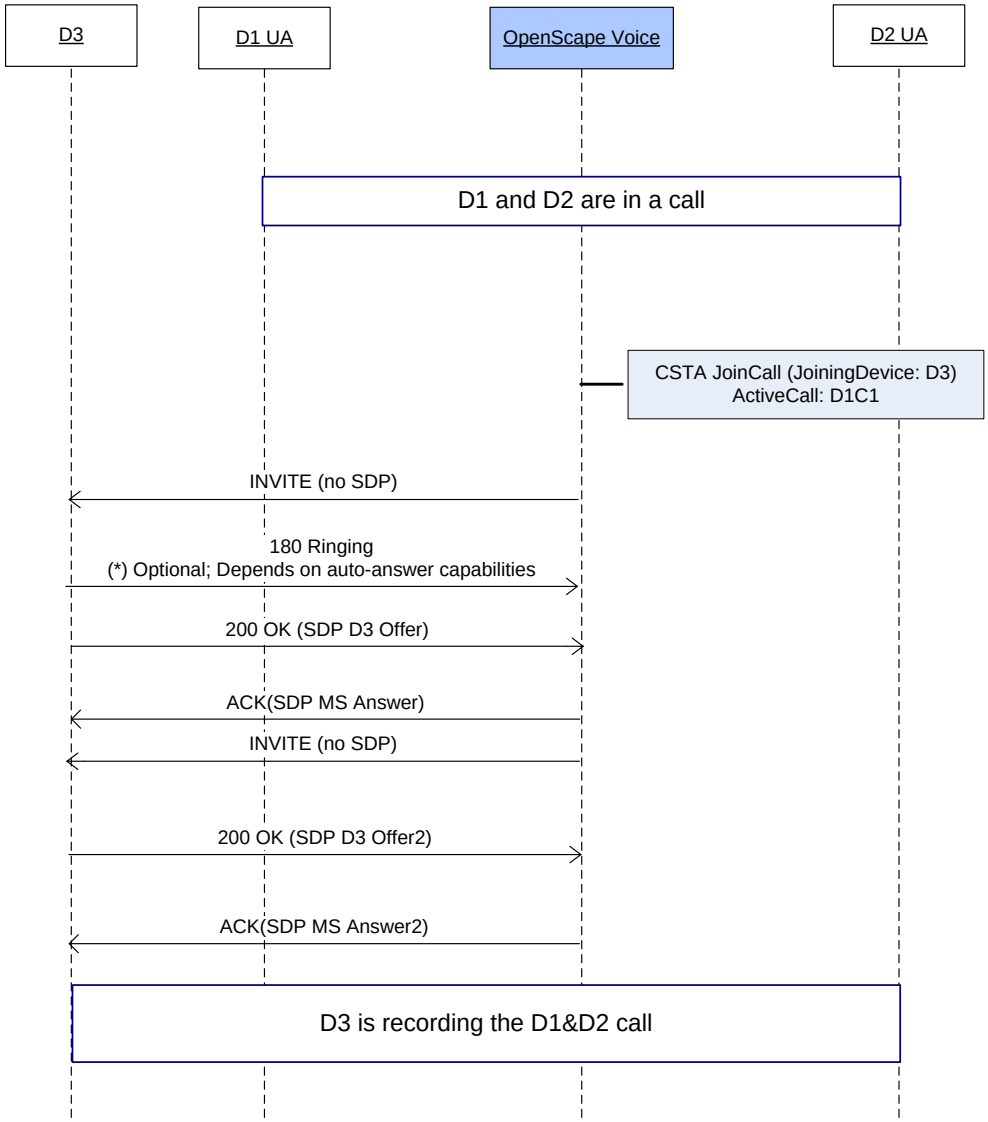
The user may hang up on the call or the CSTA-enable application may clear the connection to stop monitoring. No other operation is necessary from the perspective of the monitoring user.

1.8 Examples CSTA and SIP Flows

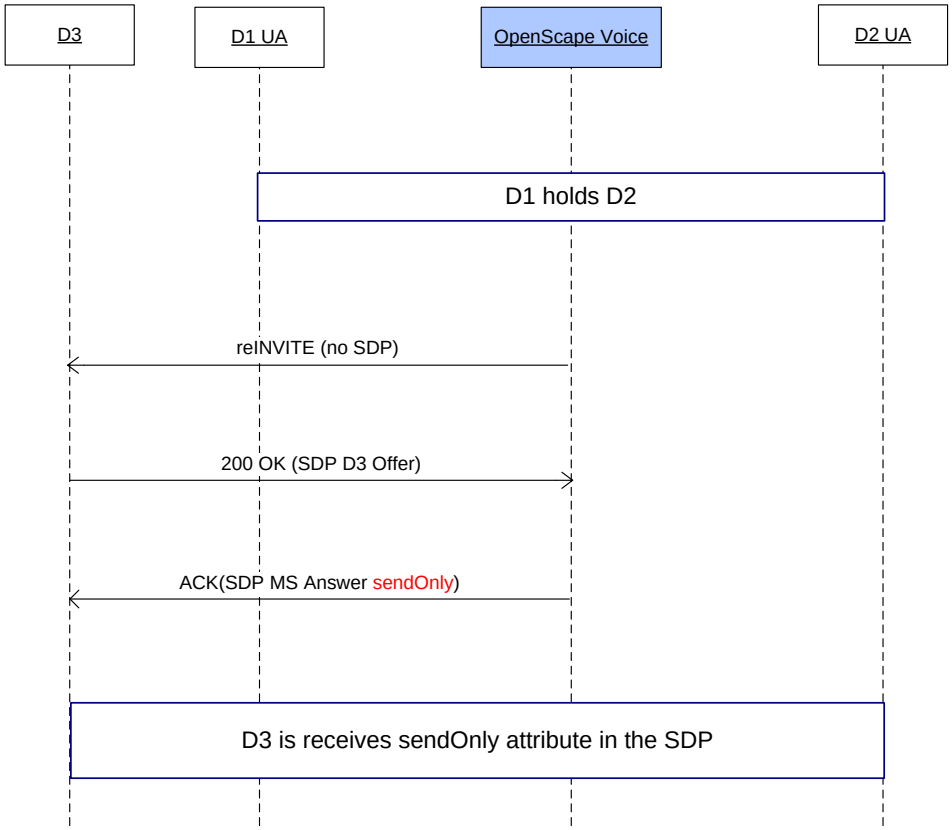
1.8.1 SIP Flows

1.8.1.1 Join Call service with a specified CSTA connectionID (On Demand Monitoring)

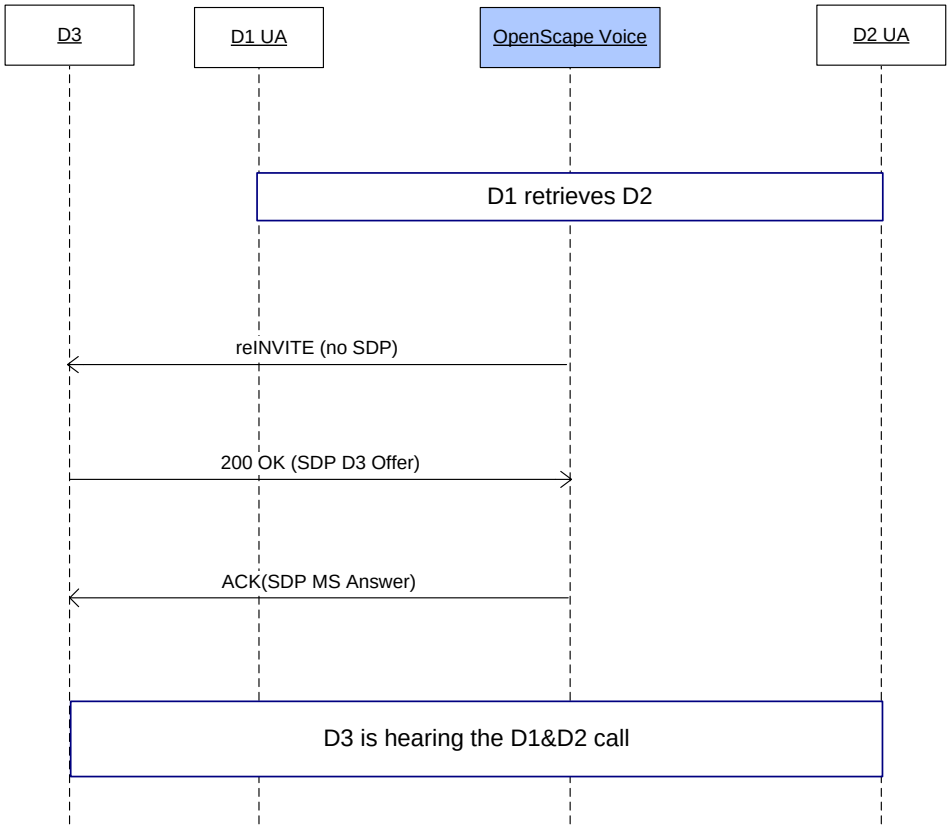
1.8.1.1.1 D1 and D2 are in a call. D3 joins in the D1&D2 call



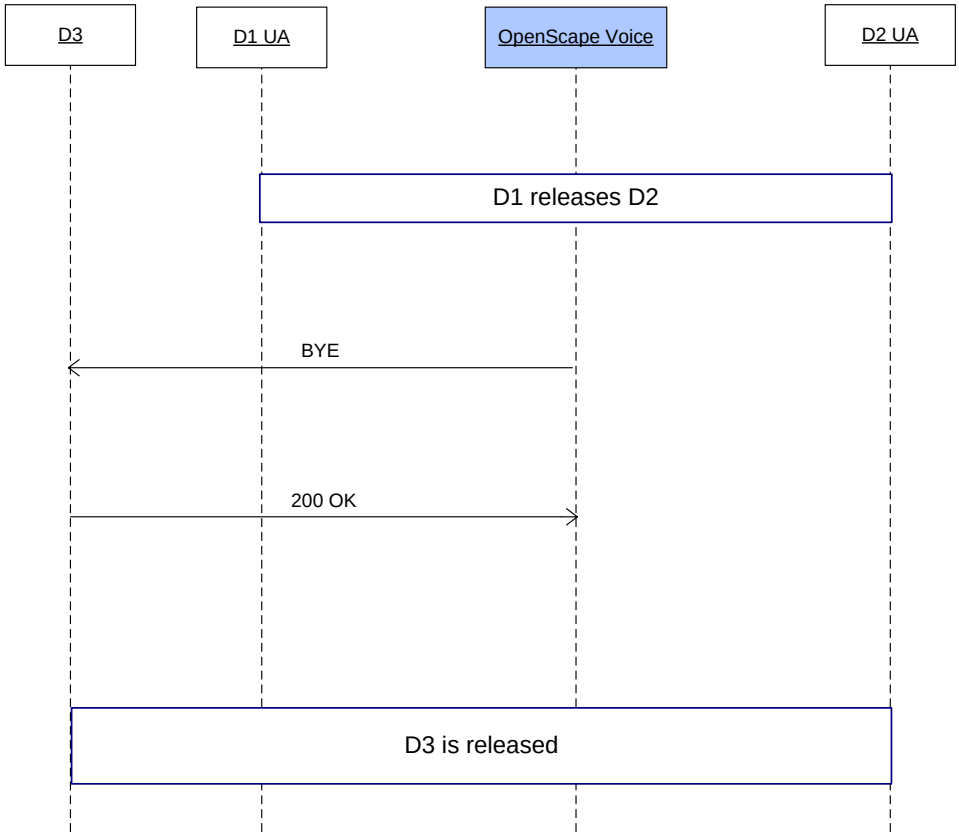
1.8.1.1.2 D1 holds D2



1.8.1.1.3 D1 retrieves D2

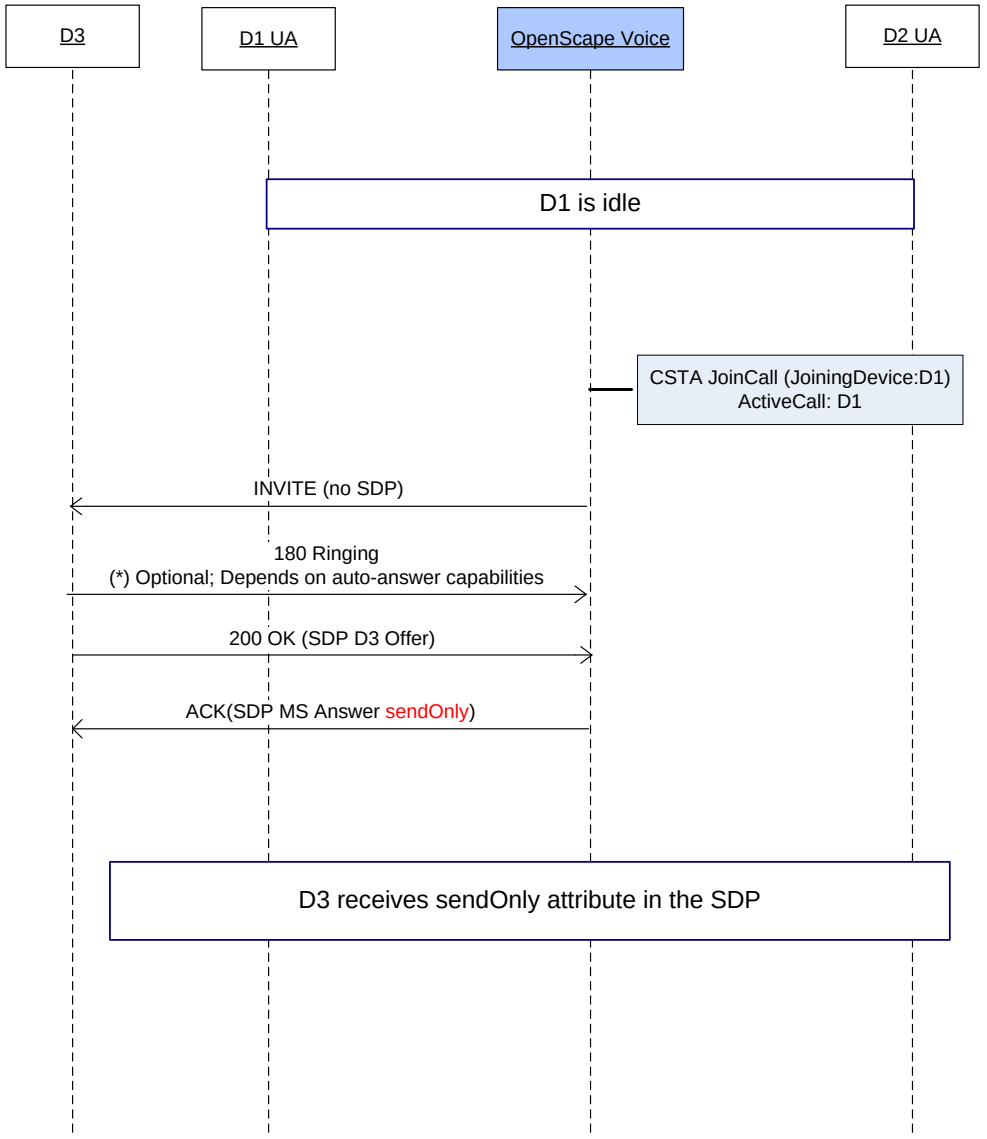


1.8.1.1.4 D1 releases D2

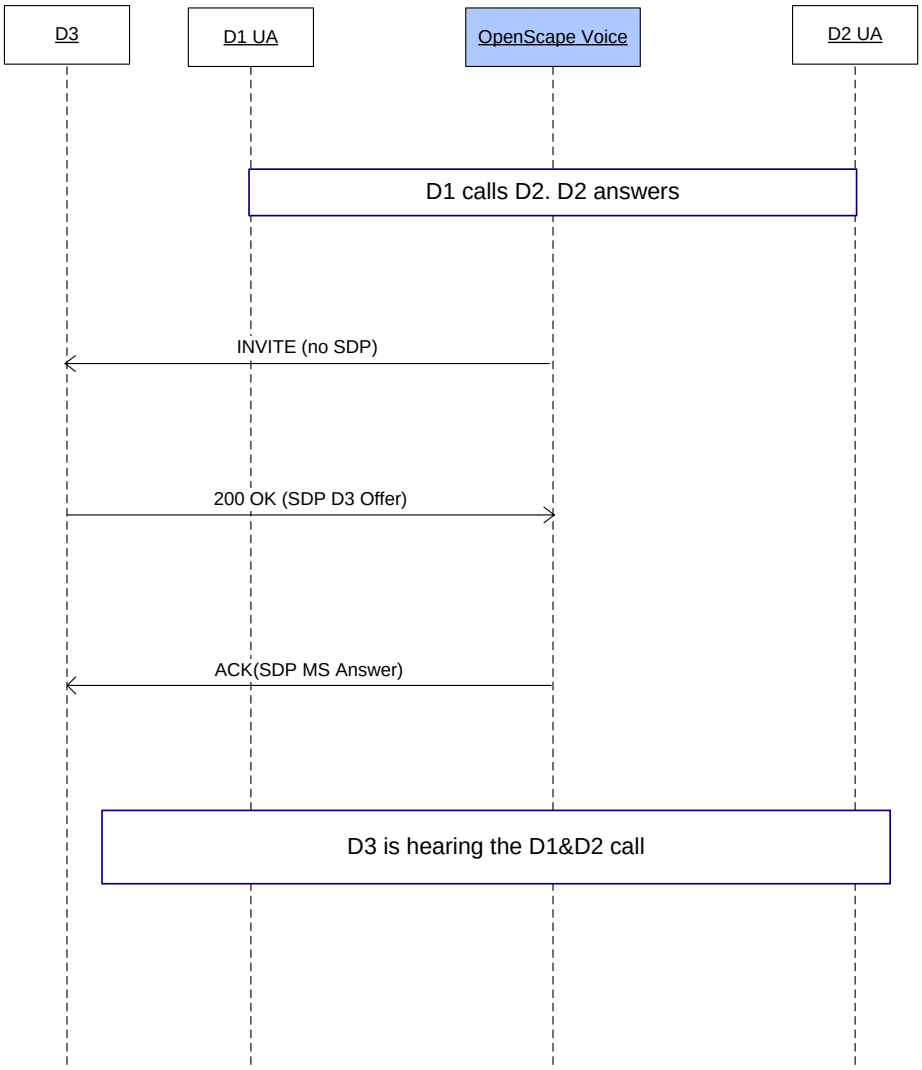


1.8.1.2 Join Call service by DeviceID (Continuous Silent Monitoring)

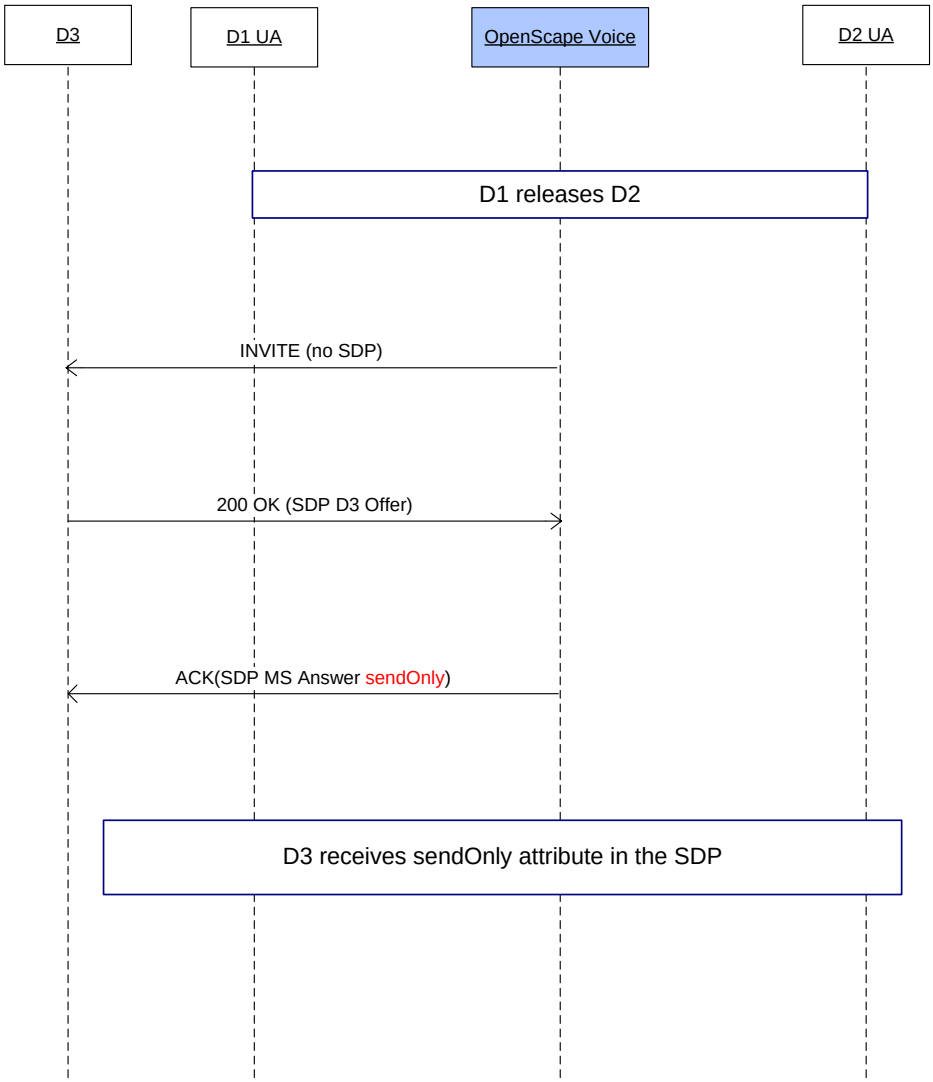
1.8.1.2.1 D1 is idle. D3 Join Call on D1



1.8.1.2.2 D1 calls D2. D2 answers. D3 is hearing D1&D2 call



1.8.1.2.3 D1 releases D2



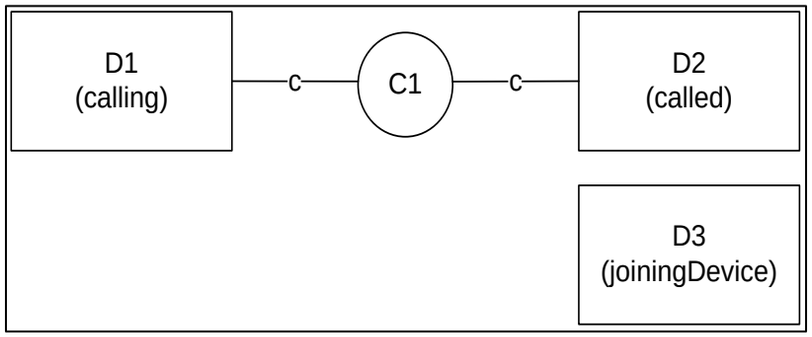
1.8.2 CSTA Service and Event Flow Examples

- Join Call service with a specified CSTA connectionID (On Demand Monitoring)
- Join Call service with a specified deviceID (Continuous Monitoring)
- Change Connection Information service (Barge-in to active Silent Monitor)
- Transfer on Silent Monitored call
- Conference on Silent Monitor call
- Join Call with specified One Number Service (ONS) connectionID (On Demand Monitoring)

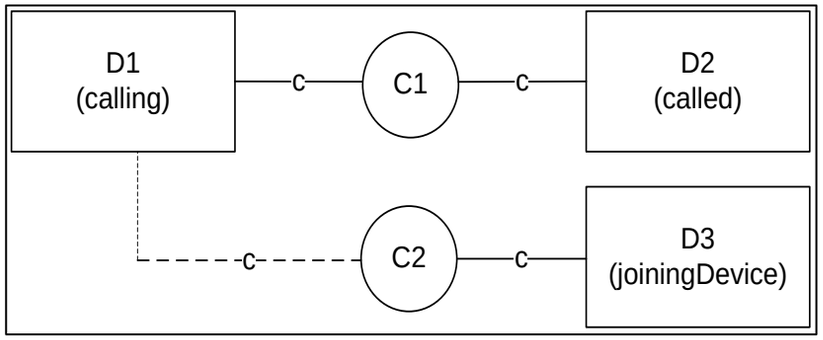
1. Join Call by connectionID

D1 and D2 are in a call C1. D3 joins into D1 & D2 call.

Before Service



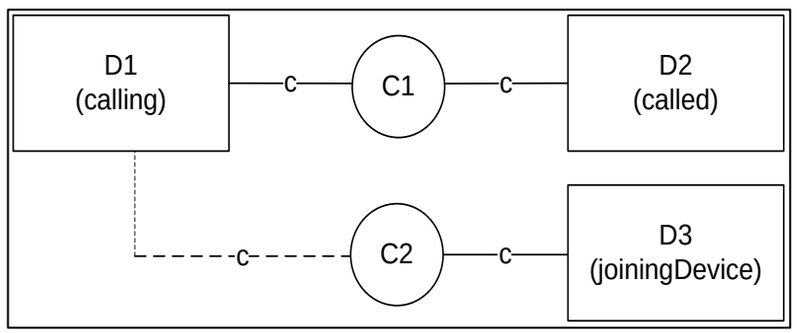
After Service



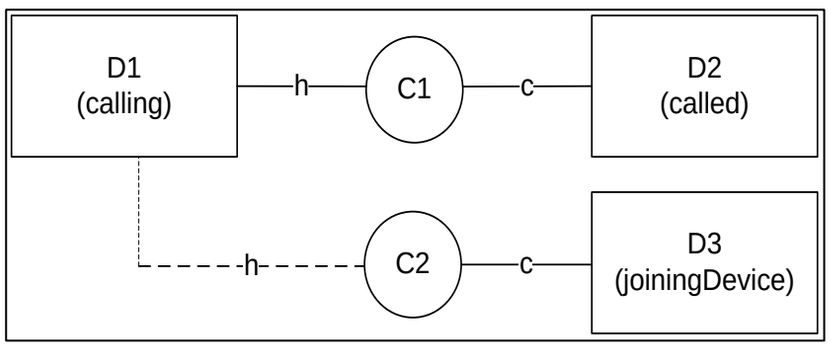
	Silent Monitored Device		Silent Monitoring Device	
Activity	**MONITORED DEVICE D1**	**MONITORED DEVICE D2**	**MONITORED DEVICE D3**	
JoinCall Request on behalf of D3 for specific callid (C1).			**JoinCall**	
			• activeCall	D1C1
			• joiningDevice	D3
			• autoOriginate	prompt
			• participationType	silent
Pos Ack			**JoinCallResponse**	
			• conferencedCall	D3C2
			ServiceInitiatedEvent	
			• initatedConnection	D3C2
			• localConnectionState	initated
			• cause	joinCall
			HeldEvent	
			• heldConnection	D1C2
			• holdingDevice	D1
			• localConnectionInfo	connected
			• cause	silentParticipation
			• servicesPermitted	ClearConn
			RetrievedEvent	
			• retrievedConnection	D1C2
			• Retrieving	D1
			• localConnectionInfo	connected
			• cause	silentParticipation
			• servicesPermitted	ClearConn, ChangeConnInfo
			• privateData:rcId	C1

D1 holds D2

Before Service



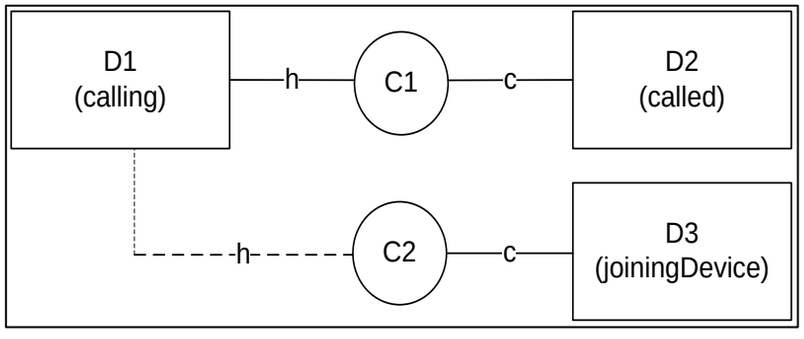
After Service



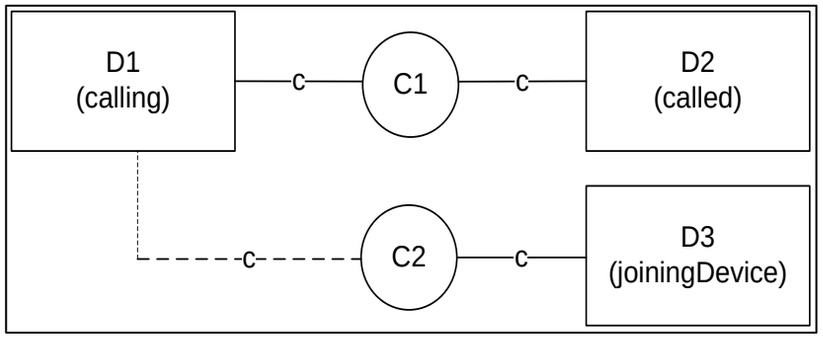
Activity	MONITORED DEVICE	D1	MONITORED DEVICE	D2	MONITORED DEVICE	D3
D1 Holds D2	**HeldEvent**		**HeldEvent**		**HeldEvent**	
	• heldConnection	D1C1	• heldConnection	D1C1	• heldConnection	D1C2
	• holdingDevice	D1	• holdingDevice	D1	• holdingDevice	D1
	• localConnectionInfo	hold	• localConnectionInfo	connected	• localConnectionInfo	connected
	• cause	normal	• cause	normal	• cause	silentParticipation
					• servicesPermitted	ClearConn
					• privateData:rcld	C1

D1 retrieves D2

Before Service



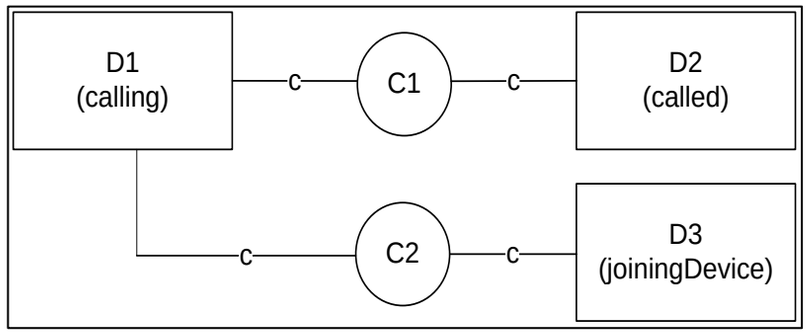
After Service



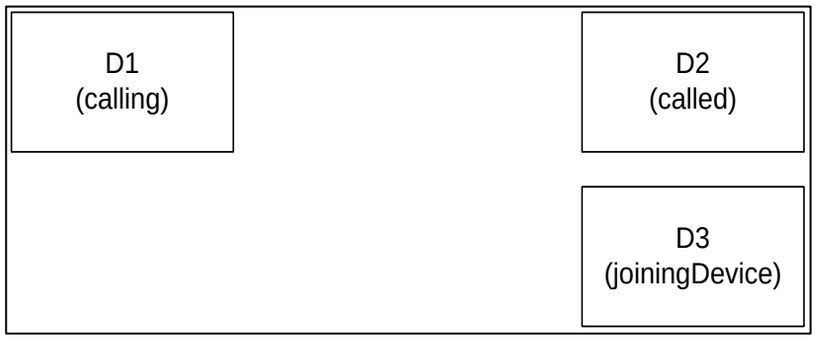
Activity	MONITORED DEVICE	D1	MONITORED DEVICE	D2	MONITORED DEVICE	D3
D1 retrieves D2	**RetrievedEvent**		**RetrievedEvent**		**RetrievedEvent**	
	• retrievedConnection	D1C1	• retrievedConnection	D1C1	• retrievedConnection	D1C2
	• Retrieving	D1	• Retrieving	D1	• Retrieving	D1
	• localConnectionInfo	connected	• localConnectionInfo	connected	• localConnectionInfo	connected
	• cause	normal	• cause	normal	• cause	silentParticipation ClearConn,
	• servicesPermitted	ClearConn, Consult, Hold, SST, GenDgt, joinCall	• servicesPermitted	ClearConn, Consult, Hold, SST, GenDgt,	• servicesPermitted	ChangeConnInfo
					• privateData:rcld	C1

D1 releases D2

Before Service



After Service

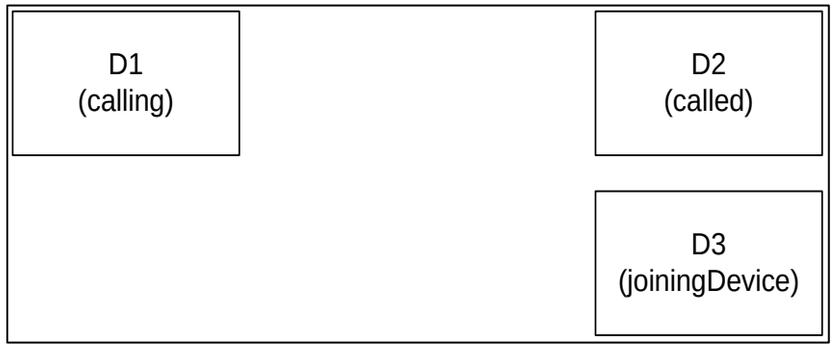


Activity	MONITORED DEVICE	D1	MONITORED DEVICE	D2	MONITORED DEVICE	D3
D1 clears	**ConnectionClearedEvent**		**ConnectionClearedEvent**		**ConnectionClearedEvent**	
	• droppedConnection	D1C1	• droppedConnection	D1C1	• droppedConnection	D1C2
	• releasingDevice	D1	• releasingDevice	D1	• releasingDevice	D1
	• localConnectionInfo	null	• localConnectionInfo	connected	• localConnectionInfo	connected
	• cause	normalClearin	• cause	normalClearing	• cause	normalClearing
			ConnectionClearedEvent		**ConnectionClearedEvent**	
			• droppedConnection	D2C1	• droppedConnection	D3C2
			• releasingDevice	D2	• releasingDevice	D3
			• localConnectionInfo	null	• localConnectionInfo	null
			• cause	normalClearing	• cause	normalClearing

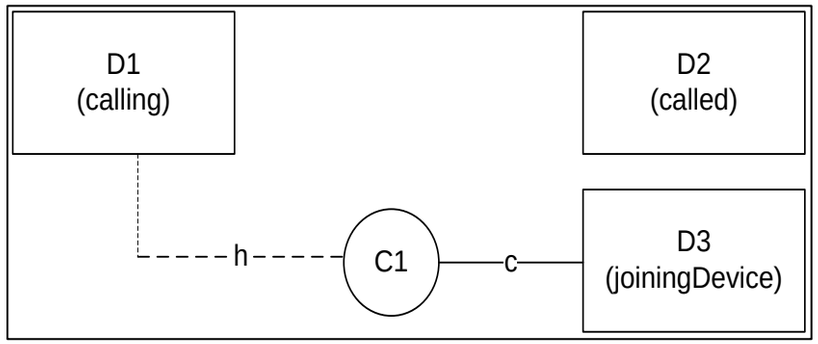
2. Join Call by DeviceID (Continuous Silent Monitoring)

D1 is idle. D3 JoinCall on D1

Before Service



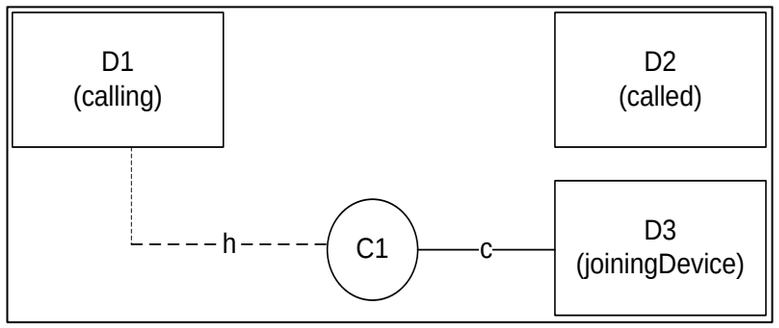
After Service



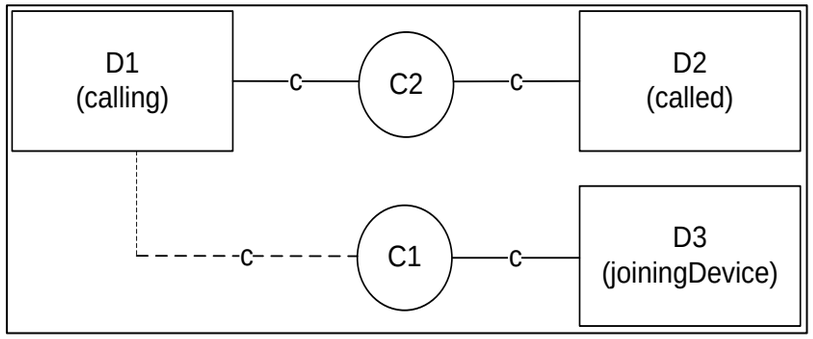
	Silent Monitored Device		Silent Monitoring Device	
Activity	**MONITORED DEVICE D1**	**MONITORED DEVICE D2**	**MONITORED DEVICE D3**	**MONITORED DEVICE D4**
JoinCall Request on behalf of D3 for D1.			**JoinCall** • activeCall D1 • joiningDevice D3 • autoOriginate prompt • participationType silent	
Pos Ack			**JoinCallResponse** • conferencedCall D3C1	
			ServiceInitiatedEvent • initatedConnection D3C1 • localConnectionState initated • cause joinCall	
			HeldEvent • heldConnection D1C1 • holdingDevice D1 • localConnectionInfo connected • cause silentParticipation • servicesPermitted ClearConn	

D1 calls D2

Before Service



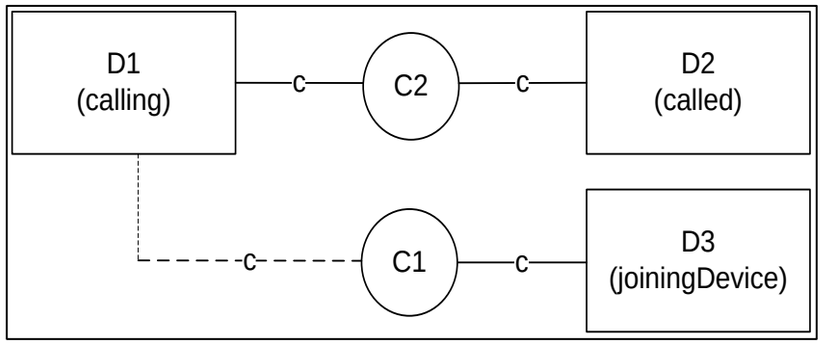
After Service



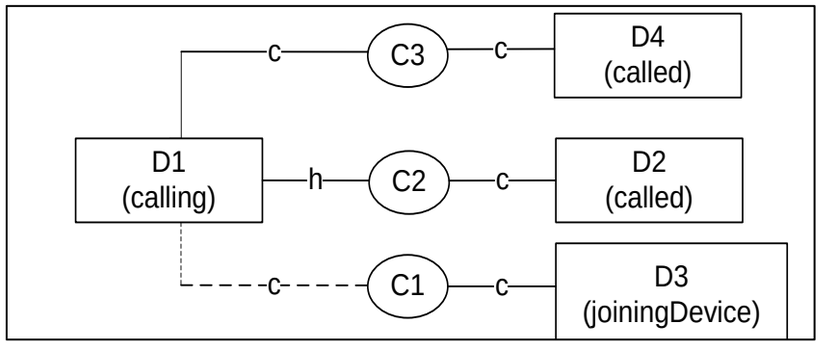
Activity	MONITORED DEVICE D1		MONITORED DEVICE D2		MONITORED DEVICE D3		MONITORED DEVICE D4
D1 calls D2 D2 starts ringing D1 receives alerting	**DeliveredEvent** • deliveredConnection • alertingDevice • callingDevice • calledDevice • lastRedirectionDevice • localConnectionInfo • cause	 D2C2 D2 D1 D2 NR connected newCall	**DeliveredEvent** • deliveredConnection • alertingDevice • callingDevice • calledDevice • lastRedirectionDevice • localConnectionInfo • cause	 D2C2 D2 D1 D2 NR alert newCall			
D2 answer	**EstablishedEvent** • establishedConnection • answeringDevice • callingDevice • calledDevice • lastRedirectionDevice • localConnectionInfo • cause • servicesPermitted	 D2C2 D2 D1 D2 NR connected newCall ClearConn, Consult, Hold, SST, GenDgt, joinCall	**EstablishedEvent** • establishedConnection • answeringDevice • callingDevice • calledDevice • lastRedirectionDevice • localConnectionInfo • cause • servicesPermitted	 D2C2 D2 D1 D2 NR connected newCall ClearConn, Consult, Hold, SST, GenDgt,	**RetrievedEvent** • retrievedConnection • Retrieving • localConnectionInfo • cause • servicesPermitted • privateData:rcId	 D1C1 D1 connected silentParticipation ClearConn, ChangeConnIInfo C2	

D1 consults D4

Before Service



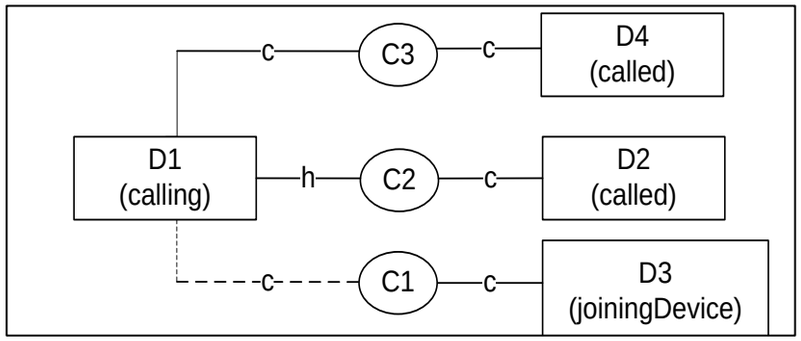
After Service



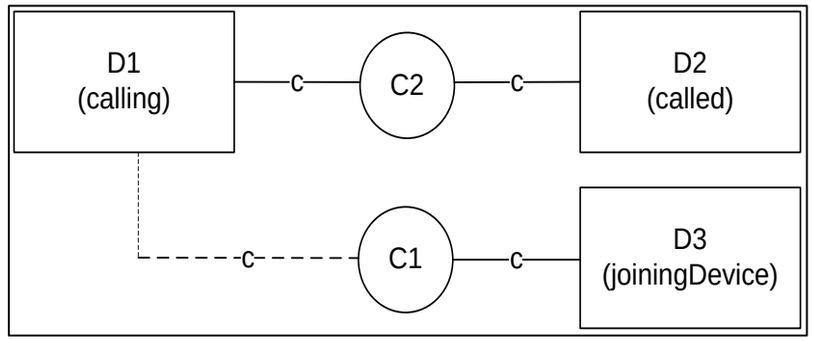
Activity	MONITORED DEVICE D1		MONITORED DEVICE D2		MONITORED DEVICE D3		MONITORED DEVICE D4	
D1 Holds D2	**HeldEvent**		**HeldEvent**		**HeldEvent**			
	• heldConnection	D1C2	• heldConnection	D1C2	• heldConnection	D1C1		
	• holdingDevice	D1	• holdingDevice	D1	• holdingDevice	D1		
	• localConnectionInfo	held	• localConnectionInfo	connected	• localConnectionInfo	connected		
	• cause	normal	• cause	normal	• cause	silentParticipation		
					• servicesPermitted	ClearConn		
					• privateData:rcld	C2		
D1 calls D4	**DeliveredEvent**						**DeliveredEvent**	
D4 is ringing	• deliveredConnection	D4C3					• deliveredConnection	D4C3
	• alertingDevice	D4					• alertingDevice	D4
	• callingDevice	D1					• callingDevice	D1
	• calledDevice	D4					• calledDevice	D4
	• lastRedirectionDevice	NR					• lastRedirectionDevice	NR
	• localConnectionInfo	connected					• localConnectionInfo	alert
	• cause	newCall					• cause	newCall
D4 answers	**EstablishedEvent**				**RetrievedEvent**		**EstablishedEvent**	
D3 is monitoring the D1C	• establishedConnection	D4C3			• retrievedConnection	D1C1	• establishedConnection	D4C3
	• answeringDevice	D4			• Retrieving	D1	• answeringDevice	D4
	• callingDevice	D1			• localConnectionInfo	connected	• callingDevice	D1
	• calledDevice	D4			• cause	silentParticipation	• calledDevice	D4
						ClearConn,		
	• lastRedirectionDevice	NR			• servicesPermitted	ChangeConnIInfo	• lastRedirectionDevice	NR
	• localConnectionInfo	connected			• privateData:rcld	C3	• localConnectionInfo	connected
	• cause	newCall					• cause	newCall
	• servicesPermitted	ClearConn, Consult, Hold, SST, GenDgt, joinCall					• servicesPermitted	ClearConn, Consult, Hold, SST, GenDgt,

D1 release D4 and reconnects to D2

Before Service



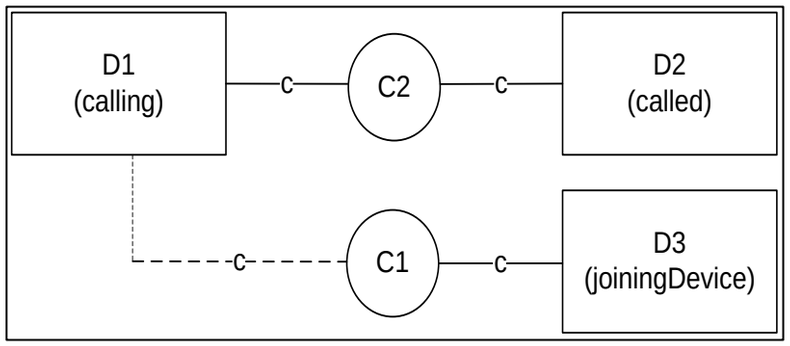
After Service



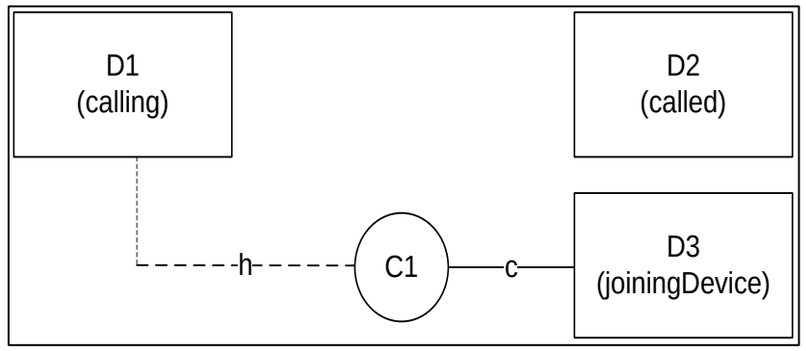
Activity	MONITORED DEVICE	D1	MONITORED DEVICE	D2	MONITORED DEVICE	D3	MONITORED DEVICE	D4
D1 clears D4	**ConnectionClearedEvent**				**HeldEvent**		**ConnectionClearedEvent**	
	• droppedConnection	D1C3			• heldConnection	D1C1	• droppedConnection	D1C3
	• releasingDevice	D1			• holdingDevice	D1	• releasingDevice	D1
	• localConnectionInfo	null					• localConnectionInfo	connected
	• cause	normalClearing			• localConnectionInfo	connected	• cause	normalClearing
					• cause	silentParticipation		
					• servicesPermitted	ClearConn		
							ConnectionClearedEvent	
							• droppedConnection	D4C3
							• releasingDevice	D4
							• localConnectionInfo	null
							• cause	normalClearing
D1 retrieves D2	**RetrievedEvent**		**RetrievedEvent**		**RetrievedEvent**			
	• retrievedConnection	D1C2	• retrievedConnection	D1C2	• retrievedConnection	D1C1		
	• Retrieving	D1	• Retrieving	D1	• Retrieving	D1		
	• localConnectionInfo	connected	• localConnectionInfo	connected	• localConnectionInfo	connected		
	• cause	normal	• cause	normal	• cause	silentParticipation		
	• servicesPermitted	ClearConn, Consult, Hold, SST, GenDgt, JoinCall	• servicesPermitted	ClearConn, Consult, Hold, SST, GenDgt	• servicesPermitted	ChangeConnIInfo		
					• privateData:rcId	C2		

D1 releases D2

Before Service



After Service

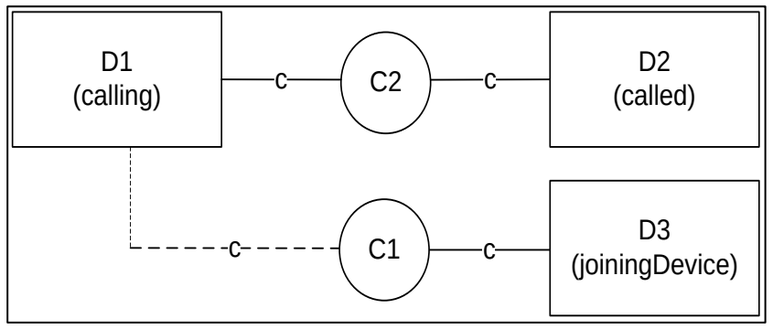


Activity	MONITORED DEVICE D1		MONITORED DEVICE D2		MONITORED DEVICE D3		MONITORED DEVICE D4
D1 clears	**ConnectionClearedEvent**		**ConnectionClearedEvent**		**HeldEvent**		
	• droppedConnection	D1C1	• droppedConnection	D1C2	• heldConnection	D1C1	
	• releasingDevice	D1	• releasingDevice	D1	• holdingDevice	D1	
	• localConnectionInfo	null	• localConnectionInfo	connected	• localConnectionInfo	connected	
	• cause	normalClearing	• cause	normalClearing	• cause	silentParticipation ClearConn	
					• servicesPermitted		
			ConnectionClearedEvent				
			• droppedConnection	D2C2			
			• releasingDevice	D1			
			• localConnectionInfo	null			
			• cause	normalClearing			

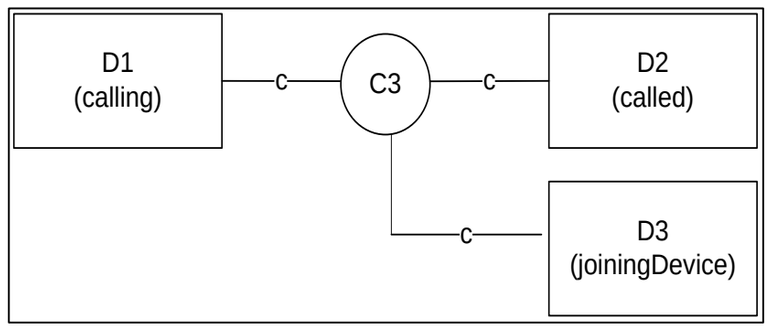
3. Barge-in to a Silent Monitored call

D1 is in a call with D2, D3 is silently monitoring D1

Before Service



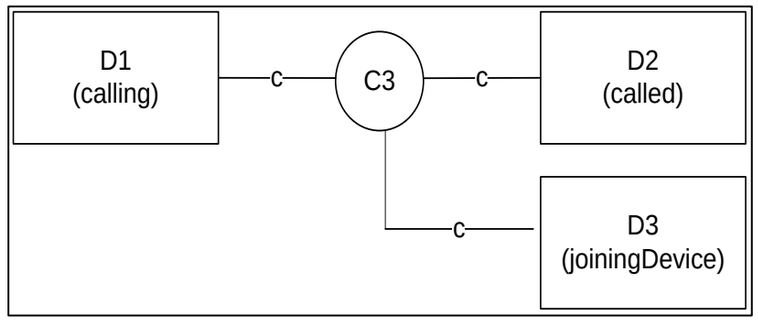
After Service



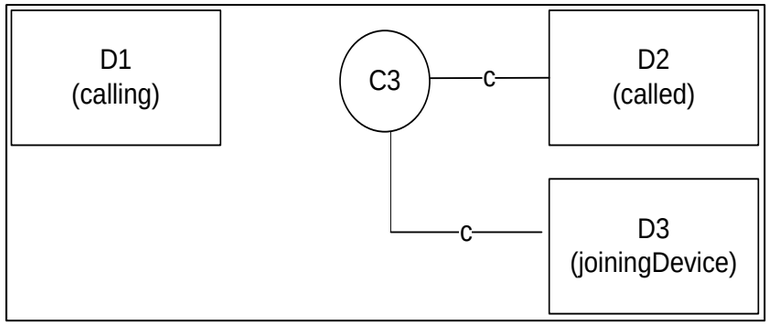
	Silent Monitored Device				Silent Monitoring Device	
Activity	**MONITORED DEVICE**	**D1**	**MONITORED DEVICE**	**D2**	**MONITORED DEVICE**	**D3**
D3 barges-in the D1C2 call via ChangeConnectionInformation					**ChangeConnectionInformation** • connectionToBeChanged •	D3C1 Transmit&Receive
Pos Ack					**ChangeConnectionInformation** • actualConnectionInformation	Transmit&Receive
Conferenced Events for D1, D2 and D3	**ConferencedEvent** • primaryOldCall • secondaryOldCall • conferencingDevice • addedDevice • conferencedConnection • conferencedConnection • conferencedConnection • localConnectionState • cause • servicesPermitted	 D1C2 --- D1 D3 D1C3 D2C3 D3C3 connected conference ClearConn, Consult, Hold, SST, GenDgt, JoinCall	**ConferencedEvent** • primaryOldCall • secondaryOldCall • conferencingDevice • addedDevice • conferencedConnection • conferencedConnection • conferencedConnection • localConnectionState • cause • servicesPermitted	 D2C2 --- D1 D3 D1C3 D2C3 D3C3 connected conference ClearConn, Consult, Hold, SST, GenDgt	**ConferencedEvent** • primaryOldCall • secondaryOldCall • conferencingDevice • addedDevice • conferencedConnection • conferencedConnection • conferencedConnection • localConnectionState • cause • servicesPermitted	 D3C1 --- D1 D3 D1C3 D2C3 D3C3 connected conference ClearConn, Consult, Hold, SST, GenDgt

D1 clears, D2 D3 revert to basic call

Before Service



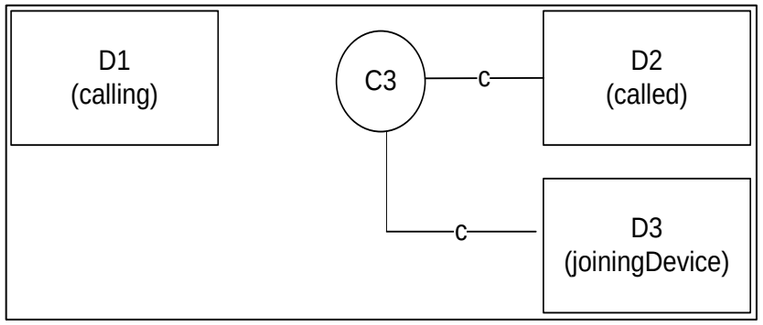
After Service



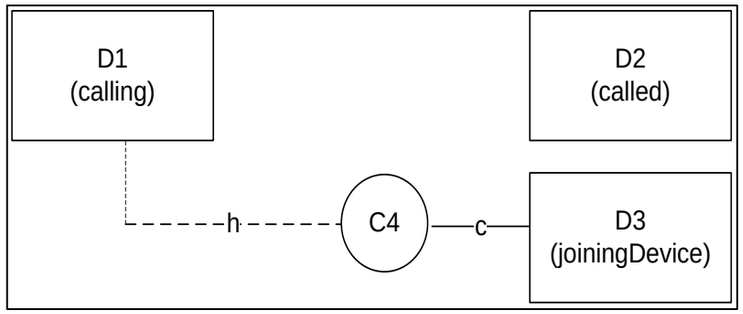
Activity	MONITORED DEVICE	D1	MONITORED DEVICE	D2	MONITORED DEVICE	D3
D1 clears	**ConnectionClearedEvent**		**ConnectionClearedEvent**		**ConnectionClearedEvent**	
	• droppedConnection	D1C3	• droppedConnection	D1C3	• droppedConnection	D1C3
	• releasingDevice	D1	• releasingDevice	D1	• releasingDevice	D1
	• localConnectionInfo	null	• localConnectionInfo	connected	• localConnectionInfo	connected
	• cause	normalClearing	• cause	normalClearing	• cause	normalClearing
D2, D3 revert to basic call			**CallInformationEvent**		**CallInformationEvent**	
			• connection	D2C3	• connection	D3C3
			• device	D2	• device	D3
			• servicesPermitted	same as normal two party call.	• servicesPermitted	same as normal two party call.

D2 clears

Before Service



After Service

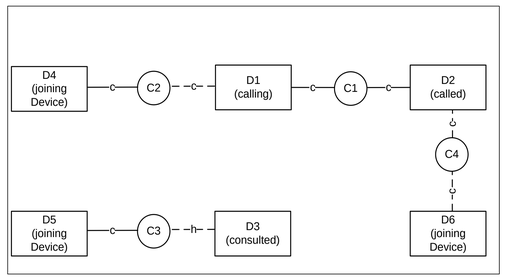


Activity	MONITORED DEVICE D1	MONITORED DEVICE D2	MONITORED DEVICE D3
D1 clears		**ConnectionClearedEvent** • droppedConnection D2C3 • releasingDevice D2 • localConnectionInfo null • cause normalClearing	**ConnectionClearedEvent** • droppedConnection D2C3 • releasingDevice D2 • localConnectionInfo connected • cause normalClearing
			ConnectionClearedEvent • droppedConnection D3C3 • releasingDevice D3 • localConnectionInfo null • cause normalClearing
D3 is brought back to the SILM session			**ServiceInitiatedEvent** • initiatedConnection D3C4 • initiatingDevide D3 • localConnectionInfo initated • cause silentParticipation
			HeldEvent • heldConnection D1C4 • **holdingDevice** **D1** • localConnectionInfo connected • cause silentParticipation • servicesPermitted ClearConn

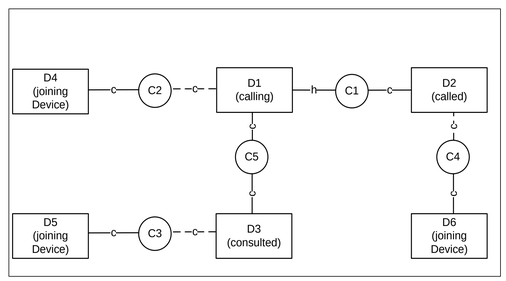
4. Transfer of Silent Monitored Call

D1 is silently monitored by D4, D2 is silently monitored by D6, D3 is silently monitored by D5 ;
D1holds D2 and consults D3

Before Service



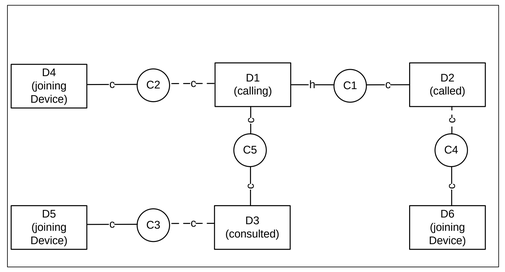
After Service



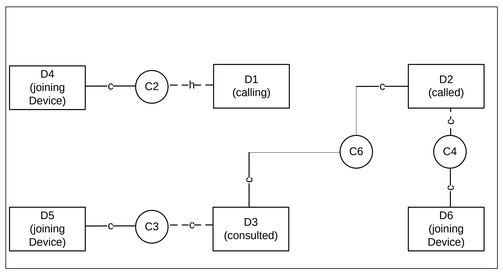
	Silent Monitored Device by D4		Silent Monitored Device by D6		Silent Monitored Device by D5		Silent Monitoring Device for D1		Silent Monitoring Device for D3		Silent Monitoring Device for D2	
Activity	**MONITORED DEVICE**	**D1**	**MONITORED DEVICE**	**D2**	**MONITORED DEVICE**	**D3**	**MONITORED DEVICE**	**D4**	**MONITORED DEVICE**	**D5**	**MONITORED DEVICE**	**D6**
D1 holds D2	**HeldEvent**		**HeldEvent**				**HeldEvent**				**HeldEvent**	
	• heldConnection	D1C1	• heldConnection	D1C1			• heldConnection	D1C2			• heldConnection	D2C4
	• holdingDevice	D1	• holdingDevice	D1			• holdingDevice	D1			• holdingDevice	D2
	• localConnectionInfo	held	• localConnectionInfo	connected			• localConnectionInfo	connected			• localConnectionInfo	connected
	• cause	normal	• cause	normal			• cause	silentParticipation			• cause	silentParticipation
							• servicesPermitted	ClearConn			• servicesPermitted	ClearConn
							• privateData:rcId	C1			• privateData:rcId	C1
D1 consults D3	**DeliveredEvent**				**DeliveredEvent**							
D3 ringing	• deliveredConnection	D3C5			• deliveredConnection	D3C5						
	• alertingDevice	D3			• alertingDevice	D3						
	• callingDevice	D1			• callingDevice	D1						
	• calledDevice	D3			• calledDevice	D3						
	• lastRedirectionDevice	NR			• lastRedirectionDevice	NR						
	• localConnectionInfo	connected			• localConnectionInfo	alert						
	• cause	newCall			• cause	newCall						
D3 answers	**EstablishedEvent**				**EstablishedEvent**		**RetrievedEvent**		**RetrievedEvent**			
	• establishedConnection	D3C5			• establishedConnection	D3C5	• retrievedConnection	D1C2	• retrievedConnection	D3C3		
	• answeringDevice	D3			• answeringDevice	D3	• Retrieving	D1	• Retrieving	D3		
	• callingDevice	D1			• callingDevice	D1	• localConnectionInfo	connected	• localConnectionInfo	connected		
	• calledDevice	D3			• calledDevice	D3	• cause	silentParticipation ClearConn, ChangeConnInfo	• cause	silentParticipation ClearConn, ChangeConnInfo		
	• lastRedirectionDevice	NR			• lastRedirectionDevice	NR	• servicesPermitted	C5	• servicesPermitted	C5		
	• localConnectionInfo	connected			• localConnectionInfo	connected	• privateData:rcId		• privateData:rcId			
	• cause	newCall			• cause	newCall						
	• servicesPermitted	ClearConn, Consult, Hold, SST, GenDgt, JoinCall			• servicesPermitted	ClearConn, Consult, Hold, SST, GenDgt, JoinCall						

D1 transfers D3 to D2

Before Service



After Service

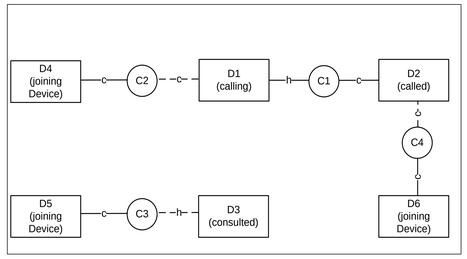


Activity	**MONITORED DEVICE**	**D1**	**MONITORED DEVICE**	**D2**	**MONITORED DEVICE**	**D3**	**MONITORED DEVICE**	**D4**	**MONITORED DEVICE**	**D5**	**MONITORED DEVICE**	**D6**
Transferring party goes idle and original	**TransferredCallEvent**		**TransferredCallEvent**		**TransferredCallEvent**		**HeldEvent**		**RetrievedEvent**		**RetrievedEvent**	
	• primaryOldCall	D1C1	• primaryOldCall	D2C1	• primaryOldCall	D3C5	• heldConnection	D1C2	• retrievedConnection	D3C3	• retrievedConnection	D2C4
	• secondaryOldCall	D1C5	• secondaryOldCall	NR	• secondaryOldCall	NR	• holdingDevice	D1	• Retrieving	D3	• Retrieving	D2
	• transferringDevice	D1	• transferringDevice	D1	• transferringDevice	D1	• localConnectionInfo	connected	• localConnectionInfo	connected	• localConnectionInfo	connected
	• transferredToDevice	D3	• transferredToDevice	D3	• transferredToDevice	D3	• cause	silentParticipation	• cause	silentParticipation ClearConn,	• cause	silentParticipation ClearConn,
	• transferredConnection	D2C6	• transferredConnection	D2C6	• transferredConnection	D2C6	• servicesPermitted	ClearConn	• servicesPermitted	ChangeConnInfo	• servicesPermitted	ChangeConnInfo
	• transferredConnection	D3C6	• transferredConnection	D3C6	• transferredConnection	D3C6			• privateData:rcId	C6	• privateData:rcId	C6
	• localConnectionState	null	• localConnectionState	connected	• localConnectionState	connected						
	• cause	transfer	• cause	transfer	• cause	transfer						

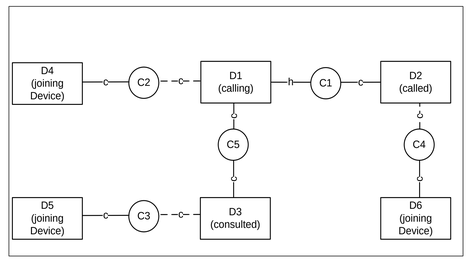
5. Conference of Silent Monitored Call

D1 is silently monitored by D4, D2 is silently monitored by D6, D3 is silently monitored by D5
D1holds D2 and consults D3

Before Service



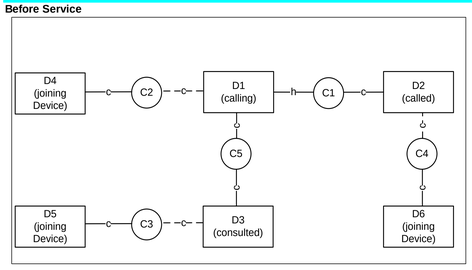
After Service



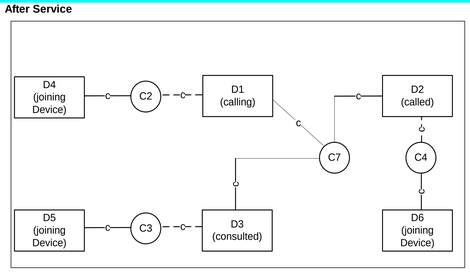
	Silent Monitored Device by D4		Silent Monitored Device by D6		Silent Monitored Device by D5		Silent Monitoring Device for D1		Silent Monitoring Device for D3		Silent Monitoring Device for D2	
Activity	**MONITORED DEVICE**	**D1**	**MONITORED DEVICE**	**D2**	**MONITORED DEVICE**	**D3**	**MONITORED DEVICE**	**D4**	**MONITORED DEVICE**	**D5**	**MONITORED DEVICE**	**D6**
D1 holds D2	**HeldEvent**		**HeldEvent**				**HeldEvent**				**HeldEvent**	
	• heldConnection	D1C1	• heldConnection	D1C1			• heldConnection	D1C2			• heldConnection	D2C4
	• holdingDevice	D1	• holdingDevice	D1			• holdingDevice	D1			• holdingDevice	D2
	• localConnectionInfo	held	• localConnectionInfo	connected			• localConnectionInfo	connected			• localConnectionInfo	connected
	• cause	normal	• cause	normal			• cause	normal			• cause	normal
							• servicesPermitted	clearConn			• servicesPermitted	clearConn
							• privateData:rcld	C1	ConCC		• privateData:rcld	C1
D1 consults D3												
D3 ringing	**DeliveredEvent**				**DeliveredEvent**							
	• deliveredConnection	D3C5			• deliveredConnection	D3C5						
	• alertingDevice	D3			• alertingDevice	D3						
	• callingDevice	D1			• callingDevice	D1						
	• calledDevice	D3			• calledDevice	D3						
	• lastRedirectionDevice	NR			• lastRedirectionDevice	NR						
	• localConnectionInfo	connected			• localConnectionInfo	alert						
	• cause	newCall			• cause	newCall						
D3 answers	**EstablishedEvent**				**EstablishedEvent**		**RetrievedEvent**		**RetrievedEvent**			
	• establishedConnection	D3C5			• establishedConnection	D3C5	• retrievedConnection	D1C2	• retrievedConnection	D3C3		
	• answeringDevice	D3			• answeringDevice	D3	• Retrieving	D1	• Retrieving	D3		
	• callingDevice	D1			• callingDevice	D1	• localConnectionInfo	connected	• localConnectionInfo	connected		
	• calledDevice	D3			• calledDevice	D3	• cause	silentParticipation	• cause	silentParticipation		
	• lastRedirectionDevice	NR			• lastRedirectionDevice	NR	• servicesPermitted	ClearConn, ChangeConn	• servicesPermitted	ClearConn, ChangeConnInfo		
	• localConnectionInfo	connected			• localConnectionInfo	connected	• privateData:rcld	C5	• privateData:rcld	C5		
	• cause	newCall			• cause	newCall						
	• servicesPermitted	ClearConn, Consult, Hold, SST, GenDgt, JoinCall			• servicesPermitted	ClearConn, Consult, Hold, SST, GenDgt, JoinCall						

D1 creates conference with D2 and D3

Before Service



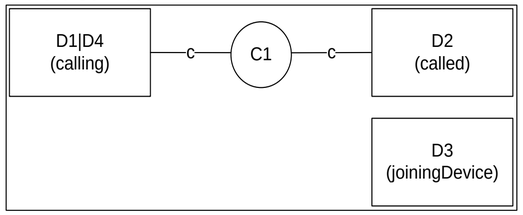
After Service



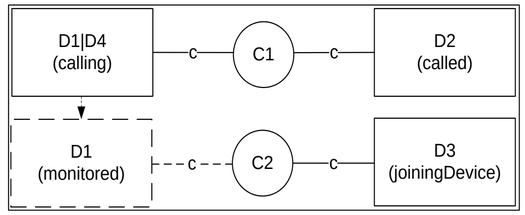
Activity	**MONITORED DEVICE**	**D1**	**MONITORED DEVICE**	**D2**	**MONITORED DEVICE**	**D3**	**MONITORED DEVICE**	**D4**	**MONITORED DEVICE**	**D5**	**MONITORED DEVICE**	**D6**
User D1 invokes conference. Phone	**ServiceInitiatedEvent**						**HeldEvent**		**HeldEvent**			
	• initatedConnection	D1C6					• heldConnection	D1C2	• heldConnection	D3C3		
	• localConnectionInfo	initated					• holdingDevice	D1	• holdingDevice	D3		
	• cause	newCall					• servicesPermitted	ClearConn	• servicesPermitted	ClearConn		
Clear temporary connection	**ConnectionClearedEvent**						• localConnectionInfo	connected	• localConnectionInfo	connected		
	• droppedConnection	D1C6					• cause	silentParticipation	• cause	silentParticipation		
	• releasingDevice	D1					• privateData:rcld	C5	• privateData:rcld	C5		
	• localConnectionInfo	null										
	• cause	normalClearing										
Centralized conference established	**ConferencedEvent**		**ConferencedEvent**		**ConferencedEvent**		**RetrievedEvent**		**RetrievedEvent**		**RetrievedEvent**	
	• primaryOldCall	D1C1	• primaryOldCall	D2C1	• primaryOldCall	D3C5	• retrievedConnection	D1C2	• retrievedConnection	D3C3	• retrievedConnection	D2C4
	• secondaryOldCall	D1C5	• secondaryOldCall	NS	• secondaryOldCall	NS	• Retrieving	D1	• Retrieving	D3	• Retrieving	D2
	• conferencingDevice	D1	• conferencingDevice	D1	• conferencingDevice	D1	• localConnectionInfo	connected	• localConnectionInfo	connected	• localConnectionInfo	connected
	• addedDevice	D3	• addedDevice	D3	• addedDevice	D3	• cause	silentParticipation	• cause	silentParticipation	• cause	silentParticipation
	• ConferenceConnection	D1C7	• ConferenceConnection	D1C7	• ConferenceConnection	D1C7	• servicesPermitted	ClearConn, ChangeConn	• servicesPermitted	ClearConn, ChangeConn	• servicesPermitted	ClearConn, ChangeConnInfo
	• ConferenceConnection	D2C7	• ConferenceConnection	D2C7	• ConferenceConnection	D2C7	• privateData:rcld	C7	• privateData:rcld	C7	• privateData:rcld	C7
	• ConferenceConnection	D3C7	• ConferenceConnection	D3C7	• ConferenceConnection	D3C7						
	• localConnectionInfo	connected	• localConnectionInfo	connected	• localConnectionInfo	connected						
	• cause	conference	• cause	conference	• cause	conference						

D1 and D2 are in a call C1. D3 joins into D1 & D2 call.

Before Service

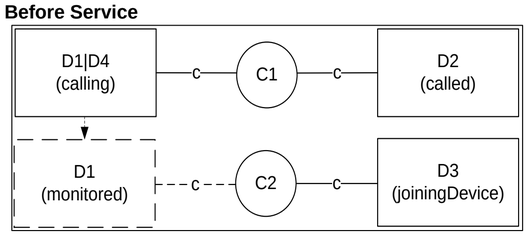


After Service

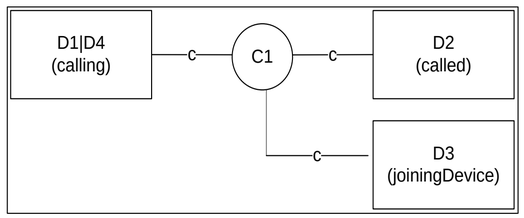


	Silent Monitored Device				Silent Monitoring Device	
Activity	**MONITORED DEVICE**	**D1**	**MONITORED DEVICE**	**D2**	**MONITORED DEVICE**	**D3**
JoinCall Request on behalf of D3 for specific connection (D1|D4C1). This will be supported for backwards compatibility purposes. The monitoring will last as long this call lasts					**JoinCall** • activeCall • joiningDevice • autoOriginate • participationType	 D1|D4C1 D3 prompt silent
Pos Ack **(ack is immediately generated by the 8k)**					**JoinCallResponse** • conferencedCall	 D3C2
					ServiceInitiatedEvent • initatedConnection • localConnectionState • cause	 D3C2 initated joinCall
					HeldEvent • heldConnection • holdingDevice • localConnectionInfo • cause • servicesPermitted	 **D1**C2 **D1** connected silentParticipation ClearConn
					RetrievedEvent • retrievedConnection • retrievingDevice • localConnectionInfo • cause • servicesPermitted • privateData:rcId	 **D1**C2 **D1** connected silentParticipation ClearConn **C1**

Before Service



After Service



	Silent Monitored Device				Silent Monitoring Device	
Activity	**MONITORED DEVICE**	**D1**	**MONITORED DEVICE**	**D2**	**MONITORED DEVICE**	**D3**
D3 barges-in the D1C2 call via CSTA ChangeConnectionInformation Service Request					**ChangeConnectionInformation** • connectionToBeChanged •	 D3C2 Transmit&Receive
Pos Ack **(ack is immediately generated by the 8k)**					**ChangeConnectionInformationRespo** • actualConnectionInformation	 Transmit&Receive
Conferenced Events for D1, D2 and D3	**ConferencedEvent** • primaryOldCall • secondaryOldCall • conferencingDevice • addedDevice • conferencedConnection • conferencedConnection • conferencedConnection • localConnectionState • cause	 D1|D4C1 NR D1|D4 D3 D1|D4C1 D2C1 D3C1 connected conference	**ConferencedEvent** • primaryOldCall • secondaryOldCall • conferencingDevice • addedDevice • conferencedConnection • conferencedConnection • conferencedConnection • localConnectionState • cause	 D2C1 NR D1|D4 D3 D1|D4C1 D2C1 D3C1 connected conference	**ConferencedEvent** • primaryOldCall • secondaryOldCall • conferencingDevice • addedDevice • conferencedConnection • conferencedConnection • conferencedConnection • localConnectionState • cause	 **D3C2** NR D1|D4 D3 D1|D4C1 D2C1 D3C1 connected conference